

## **CLAIMS:**

1. Process for manufacturing a surface formation, preferably a sample carrier,  
with a multitude of MALDI matrix points, characterised in that the MALDI  
5 matrix points are applied to the sample carrier by precipitation of a MALDI  
matrix substance from the gas phase, preferably by sublimation.
2. Process according to claim 1, characterised in that a plate covers the sample  
carrier during the precipitation from the gas phase, which plate has through  
10 holes whose cross-sectional area corresponds to the cross-sectional area of the  
respective MALDI matrix points.
3. Process according to claim 2, characterised in that the plate has at least one  
further through hole by means of which information is transferred to the  
15 sample carrier by precipitation of the MALDI matrix substance from the gas  
phase.
4. Process according to claim 3, characterised in that the information comprises,  
for example, the composition of the MALDI matrix substance and/or  
20 alignment points.
5. Process according to one of the preceding claims, characterised in that the  
MALDI matrix points are arranged along a grid.
- 25 6. Process according to one of the preceding claims, characterised in that the  
MALDI matrix points have substructures.
7. Process according to claim 6, characterised in that the MALDI matrix points  
are separated into several partial points, preferably isolated from one another.

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8. Process according to one of the preceding claims, characterised in that different MALDI matrix substances are applied to a sample carrier.
- 5 9. Process according to claim 8, characterised in that at least several MALDI matrix points or partial points each consisting of one MALDI matrix substance are built up.
- 10 10. Process according to one of the preceding claims, characterised in that  $\alpha$ -cyano-4-hydroxycoumarin acid is used as a MALDI matrix substance.
- 11 11. Process according to one of the preceding claims, characterised in that the sample carrier has an ultraphobic surface.
- 12 12. Process according to claim 11, characterised in that the MALDI matrix points or partial points represent hydrophilic areas which are completely surrounded by ultraphobic areas.
- 15 13. Surface formation obtainable with a process according to one of the claims 1 - 12.
- 20 14. Surface formation according to claim 13, characterised in that it has several layers.
- 25 15. Surface formation (1) according to claim 14, characterised in that it has a first layer (2) with an ultraphobic surface (3) and a carrier layer (4).
- 30 16. Surface formation according to claim 15, characterised in that the first layer (2) is applied reversibly on a carrier layer (4) and the maximum local flatness deviation of the surface formation on a length of 100 mm is <100 $\mu$ m.

17. Surface formation according to claim 16, characterised in that the first layer (2) is glued to the carrier layer (4).
- 5 18. Surface formation according to one of claims 16 or 17, characterised in that there is an electrical contact between the first layer (2) and the carrier layer (4).
- 10 19. Long-time stable surface formation with at least one MALDI matrix point, characterised in that it is surrounded by a hollow body containing a vacuum and consisting of material impervious to water vapour and, preferably, impervious to light.
- 15 20. Surface formation according to claim 19, characterised in that it has additional biological material on the MALDI matrix point.

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